



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,988	10/31/2003	Brian M. Sager	NSL-014	8858
27652	7590	08/09/2006	EXAMINER	
JOSHUA D. ISENBERG JDI PATENT 809 CORPORATE WAY FREMONT, CA 94539			PATTERSON, MARC A	
			ART UNIT	PAPER NUMBER
			1772	

DATE MAILED: 08/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/698,988

Applicant(s)

SAGER ET AL.

Examiner

Marc A. Patterson

Art Unit

1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

**WITHDRAWN REJECTIONS**

1. The 35 U.S.C. 102(b) rejection of Claims 12 – 14, 20 – 21, 23 – 25, 27 – 30 and 34 – 35 as being anticipated by Singh et al (U.S. Patent No. 6,057,035), of record on page 2 of the previous Action, is withdrawn.
2. The 35 U.S.C. 103(a) rejection of Claims 16 – 17 as being unpatentable over Singh et al (U.S. Patent No. 6,057,035) in view of Singh et al (WO 00/78540), of record on page 2 of the previous Action, is withdrawn.
3. The 35 U.S.C. 103(a) rejection of Claim 15 as being unpatentable over Singh et al (U.S. Patent No. 6,057,035) in view of Fibiger et al (U.S. Patent No. 6,818,163 B1), of record on page 2 of the previous Action, is withdrawn.
4. The 35 U.S.C. 103(a) rejection of Claims 18 – 19 as being unpatentable over Singh et al (U.S. Patent No. 6,057,035) in view of Ogawa et al (U. S. Patent No. 5,372,888), of record on page 2 of the previous Action, is withdrawn.
5. The 35 U.S.C. 103(a) rejection of Claims 22, 26 and 31 – 33 as being unpatentable over Singh et al (U.S. Patent No. 6,057,035) in view of Brinker et al (U.S. Patent No. 6,264,741 B1), of record on page 2 of the previous Action, is withdrawn.

NEW REJECTIONS

*Claim Rejections - 35 USC § 102*

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 12 – 14, 20 – 21, 23 – 25, 27 – 30 and 34 – 36 are rejected under 35

U.S.C. 102(b) as being anticipated by Brinker et al (U.S. Patent No. 6,264,741 B1).

With regard to Claims 12, 14, 25, 28 – 30 and 34 – 36, Singh et al discloses an inorganic / organic (column 3, lines 9 – 10) nanolaminate (column 3, line 30) film (column 3, line 66) which has a plurality of layers of an inorganic material (silicate layers, therefore discrete layers comprising multiple layers or lamellae and consisting of silicate and having a different composition from a polymer layer; column 4, line 30) and a plurality of layers each consisting of an organic polymer (column 4, lines 63 – 64) wherein the layers of organic polymer alternate with the layers of inorganic material (column 3, lines 15 – 20) wherein the adjacent layers of the film are covalently bonded layers characterized by direct organic polymer – inorganic material covalent bonds (column 5, lines 33 – 35); the inorganic material therefore presents a long and tortuous path to an underlying substrate (tortuous path; column 5, lines 13 – 15); the organic material is hydrophobic (column 3, lines 15 – 20) and the film is a coating (column 3, line 51); the film is therefore a barrier film.

With regard to Claim 13, as stated above, the film has between 100 and 1000 layers (column 3, line 44 – 46).

With regard to Claim 14, Brinker et al disclose a nanolaminate, as stated above, and therefore disclose layers of organic material having a thickness of 1 nm.

With regard to Claim 15, the film disclosed by Brinker et al is transparent (column 3, line 50).

With regard to Claims 20 – 21, the layers disclosed by Brinker et al are hydrophobic, as stated above, and therefore comprise layers made from polymer precursors to which a hydrophobic group comprising methyl has been added.

With regard to Claims 22, 26 and 31 – 33, Brinker et al disclose a Gemini surfactant (column 4, lines 45 – 46) and tubules (column 8, line 6) and layers which are self assembled (column 5, lines 7 – 31).

With regard to Claims 23 – 24, the film disclosed by Singh et al is utilized a coating, as stated above; Brinker et al therefore disclose an article of manufacture having the film disposed on the surface.

With regard to Claim 27, the organic polymer disclosed by Singh et al comprises polystyrene (column 4, line 36).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1772

9. Claims 16 – 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singh et al (U.S. Patent No. 6,057,035) in view of Singh et al (WO 00/78540).

Singh et al ('035) disclose a film as discussed above. With regard to Claims 16 – 17, Singh et al fail to disclose a film which has a permeability to oxygen less than  $1 \text{ cc/m}^2/\text{day}$  and a film which has a permeability to water vapor of less than  $1 \text{ g/m}^2/\text{day}$ . However, Singh et al (WO 00/78540) teach that the permeability of oxygen and water vapor (page 64, lines 16 – 17) is dependent on the amount of silicate (usually small amounts of the silicate are required to achieve good high gas barrier properties; page 64, lines 25 – 29).

Therefore, one of ordinary skill in the art would have recognized the utility of varying the amount of silicate to obtain the desired permeabilities. Therefore, the permeabilities would be readily determined by through routine optimization of the amount of silicate by one having ordinary skill in the art depending on the desired use of the end product as taught by Singh et al.

It therefore would be obvious for one of ordinary skill in the art to vary the amount of silicate in Singh et al in ('035) in order to obtain the desired permeabilities, since the permeabilities would be readily determined through routine optimization by one having ordinary skill in the art depending on the desired end result as shown by Singh et al (WO 00/78540).

10. Claims 18 – 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singh et al (U.S. Patent No. 6,057,035) in view of Ogawa et al (U. S. Patent No. 5,372,888).

Singh et al disclose a film comprising barrier properties, as discussed above. With regard to Claims 18 – 19, Singh et al fail to disclose a superhydrophobic layer comprising fluoroalkylsilane.

Ogawa et al teach the coating of a polymer surface (column 4, lines 23 – 27) with a fluoroalkylsilane layer (alkyl fluoride – containing chlorosilane layer), therefore a superhydrophobic layer, for the purpose of obtaining a layer that is anti – contaminating (column 3, lines 55 – 59). One of ordinary skill in the art would therefore recognize the advantage of providing for the layer of Ogawa et al in Singh et al, which is a polymer and therefore comprises a polymer surface, depending on the desired anti – contamination properties of the end product.

It therefore would have been obvious for one of ordinary skill in the art to have provided for a superhydrophobic layer comprising fluoroalkylsilane in Singh et al in order to obtain a layer that is anti – contaminating as taught by Ogawa et al.

#### ANSWERS TO APPLICANT'S ARGUMENTS

11. Applicant's arguments, and amendments, regarding the 35 U.S.C. 102(b) rejection of Claims 12 – 14, 20 – 21, 23 – 25, 27 – 30 and 34 – 35 as being anticipated by Singh et al (U.S. Patent No. 6,057,035), 35 U.S.C. 103(a) rejection of Claims 16 – 17 as being unpatentable over Singh et al (U.S. Patent No. 6,057,035), 35 U.S.C. 103(a) rejection of Claim 15 as being unpatentable over Singh et al (U.S. Patent No. 6,057,035) in view of Fibiger et al (U.S. Patent No. 6,818,163 B1), 35 U.S.C. 103(a) rejection of Claims 18 – 19 as being unpatentable over Singh et al (U.S. Patent No. 6,057,035) in view of Ogawa et al (U. S. Patent No. 5,372,888), and 35 U.S.C. 103(a) rejection of Claims 22, 26 and 31 – 33 as being unpatentable over Singh et al (U.S. Patent No. 6,057,035) in view of Brinker et al (U.S. Patent No. 6,264,741 B1), of record in the previous Action, have been considered and have been found to be persuasive. The rejections are therefore withdrawn. The new rejections above are directed to amended Claims 12 – 36.

Art Unit: 1772

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc A Patterson whose telephone number is 571-272-1497.

The examiner can normally be reached on Mon - Fri 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Marc Patterson 8/7/06*  
Marc A. Patterson, PhD.  
Primary Examiner  
Art Unit 1772